

TORREYA

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✓ THE EARLY WRITERS ON FERNS AND THEIR
COLLECTIONS—IV. PRESL, 1794-1852; JOHN
SMITH, 1798-1888; FÉE, 1789-1874; AND
MOORE, 1821-1887

BY L. M. UNDERWOOD

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The real enlargement of the conception of fern genera commenced with Presl and continued with John Smith, Fée and Moore, who were the generic "splitters" in this group of plants. The form of the sporangium had early served to distinguish families, and genera were characterized by the varied distribution of the sporangia over the leaf-surface, combined with the shape of the indusium. Under this method of distinguishing genera Swartz had recognized 38 genera in 1806, and Willdenow 43 in 1810; Desvaux, more liberal, recognized 70 in 1827, and Sprengel the same year found only 66. These numbers were nearly up to the Hookerian standard, for in the *Synopsis Filicum* of 1874 only 76 genera were recognized for the orders Ophio-glossales, Marattiales, and Filicales. Contrasted with these numbers, the above-named writers increased the number of fern genera as follows:

Presl,	232 genera.
John Smith,	220 genera.
Fée,	181 genera (Polypodiaceae, only).
Moore,	176 genera.

Karel Boriwog Presl (1794-1852), a native of Bohemia, commenced publication among the ferns in the *Deliciae Pragenses* (1822) and the *Reliquiae Haenkeanae* (1825*) in which he described numerous species from Brazil, Mexico, Peru, and the Philippines. Then followed his first publication on genera in his

*The date on the title page of the first volume is 1830, but the work was published in parts, the parts containing the ferns in 1825.

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Tentamen Pteridographiae (1836) in which he recognized 116 genera in the Polypodiaceae and Cyatheaceae. This was followed in 1843 by his *Hymenophyllaceae* and in 1845 by his *Supplementum Tentaminis Pteridographiae*, which treated the remaining families. In the former work many new species were described and the *Supplementum* was a monograph of the families Ophioglossaceae, Marattiaceae, Osmundaceae, and Schizaeaceae. His later works were *Die Gefäßbündel im Stipes der Farrn* (1847) and *Epimeliae Botanicae* (1849), in which, besides describing many new species, he established 68 additional genera, bringing the total number recognized by him to 232. Presl was among the first to recognize the distribution of the fibro-vascular system both in the stem and in the leaf as having primary importance in the matter of relationship among ferns, and after Robert Brown, was the first really to look upon a genus of ferns as a natural group of closely allied organisms, instead of a loose assemblage of organisms whose superficial and accidental characters brought them under a cut and dried definition based on artificial resemblances.

Such unnatural and unholy alliances as the groups of species still included in *Gymnogramme*, *Acrostichum*, *Polypodium*, and *Davallia* in the *Synopsis Filicium* of Hooker and Baker, were separated by Presl into much more natural groups, and while he made errors, as might be expected in a pioneer, his system is in many respects the most logical single system that has yet appeared.

Presl's collection of ferns is in the botanical museum of the German University of Prague, although some of his types are at Vienna. The collection lies in its original sheets, dust-covered, unmounted, and unmolested. When we visited the collection in 1903 it was even impossible to consult any of Presl's voluminous writings on ferns in connection with his collection, for the simple reason that the extensive botanical laboratory in Prague did not possess them. With the single exception of a solitary note by Al. Braun there was little to show that any one else had ever consulted the collection since Presl's death, and yet the collection, next to those at Kew, Berlin, and Paris, is probably the most im-

portant, abounding in novelties and rich in the types of Presl, for he published no less than four hundred species of pteridophytes.

John Smith (1798–1888) was the curator of the Kew Gardens who built up the splendid collection of living ferns at that establishment. He knew ferns in cultivation better than any man before or since his time, and the genera he established were founded largely on habitual characters which in great measure were dependent on the fibro-vascular system, whose importance in taxonomy he also clearly recognized. Besides publishing an enumeration of the ferns of the Philippines, Smith early published an outline of his system of fern classification in *Hooker's Journal of Botany* (4: 38–70; 147–198. 1842) and afterwards developed it in his later publications (1) *Cultivated Ferns* (1857), (2) *Ferns British and Foreign* (1866, 2d ed. 1877) and (3) *Historia Filicum* (1875), in which he also reviewed other systems.

Smith's collection is at the British Museum and is interesting as the work of a horticulturist, which like that of a pure morphologist shows underestimation of the value of a herbarium specimen. As Smith described comparatively few species, his collection contains few types.

Antoine Laurent Apollinaire Fée (1789–1874) was professor at Strasbourg so long as that city formed a part of France. His publications on ferns consist mainly (1) of eleven memoirs on ferns, the first four in folio monographing *Antrophyum*, *Vittaria*, and *Acrostichum*; the others are in quarto form and comprise *Genera Filicum* (Memoir 5), descriptions of new species from various parts of the world (memoirs 6, 7, 8, and 10), a list of ferns of Mexico (Memoir 9), and a similar but more pretentious list of the ferns and lycopods of the Antilles (Memoir 11); and (2) *Cryptogames vasculaires du Brésil* (1869), with *Supplement* (1872–73) similarly in quarto and like the memoirs admirably illustrated with lithographic plates. These two series contain a total of 285 quarto or folio plates and illustrate about eight hundred species of ferns.

Fée's collection of ferns once belonged to Dom Pedro II of Brazil, and after the death of that unfortunate monarch became the property of M. Cosson in Paris, in whose admirable herbarium

it is now incorporated. Fée's species are largely valid ones, but his work has been discredited by the Hookerian school mostly without having seen Fée's types. With Paris as near London as Washington is near New York, this condition of affairs is positively inexplicable, and absolutely without excuse.

Thomas Moore (1821-1887) commenced the publication of an admirable *Index Filicum* in 1857-63, which contained his fern system (pp. ix-clxii, *pl.* 1-84), and commenced an alphabetical enumeration of ferns and their synonyms (pp. 1-396). Publication unfortunately stopped in the middle of the letter G. The MSS. of the remainder is preserved at Kew with Moore's extensive herbarium, the latter containing a number of types of species published largely in the *Gardeners' Chronicle*. Many have asked, Why should this not be published now? There are many reasons, and among them either one of two should decide the question in the negative. (1) Over three thousand species of ferns have been published since Moore's publication ceased. It would therefore contain less than half of the known species of ferns and so would be notoriously incomplete. (2) In Moore's time the idea of type localities had not become so all-important in the matter of systematic study of ferns as it has at the present time. No index can be regarded adequate for modern use that does not give, in addition to its citation, the type locality, *i. e.*, the source from which the species was first described.

This brief series of papers would be incomplete did we not refer to one other distinguished fern student, Georg Heinrich Mettenius, (1823-1866) for many years professor at Leipzig. Besides various enumerations of the ferns of various countries like Colombia and New Caledonia, Mettenius published (1) his *Filices Horti Botanici Lipsiensis* (1856), in which he early outlined his rather conservative classification, as he recognized only 72 genera, and, (2) a series of monographs of various genera: *Phegopteris*, *Cheilanthes*, *Polypodium*, *Aspidium*, and *Asplenium*, in his *Ueber einige Farugattungen*. After the untimely death of Mettenius, Kuhn, another brilliant but short-lived German pteridologist, published the *Reliquiae Mettenianae* (*Linnaea*, 35: 385-394. 1868; 36: 41-169. 1869), in which some species were unfortunately published of

which only imperfect material is in existence, some indeed that Mettenius would certainly never have published on such meager data. Mettenius' collection is now incorporated with the general collection of ferns at Berlin, which is next to Kew the most extensive in the world.

Other centers of interesting fern collections in Europe are those of Copenhagen with Liebmann's Mexican species; Munich, with Martius' Brazilian series; Leipzig, with Kunze's collection; and lastly Madrid with the collection of Cavanilles. Before our fern system has been completed all these and the others discussed in this series of papers must be studied comparatively from the standpoint of type specimens.

OTHER FREAKS OF PEAS

BY IDA CLENDENIN

In the November number of *TORREYA*, Dr. A. J. Grout speaks of the "queer freaks" one comes across in our large city schools in handling the material used by the botany classes. I want to describe one of these that has recently come to my notice, though it may not be so unusual as the one described by Dr. Grout.

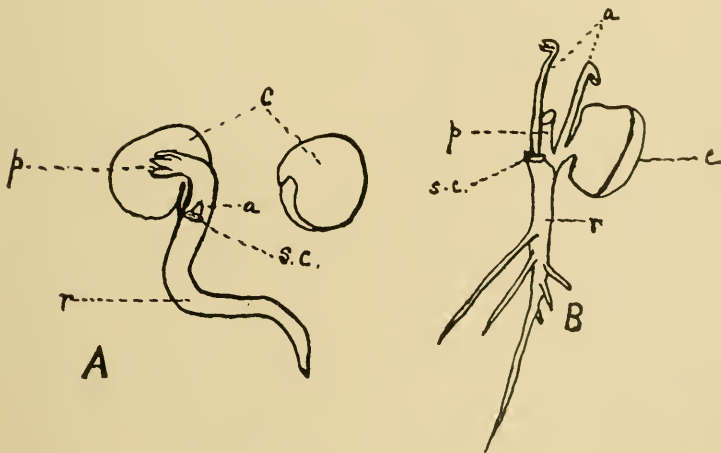


FIG. A. Young seedling, showing bud in axil of cotyledon. *a*, bud in axil of cotyledon; *c*, cotyledon; *p*, plumule; *r*, radicle; *s. c.*, scar of cotyledon.

FIG. B. Young seedling with plumule cut off; shoots from buds in axils of cotyledons.